

REMARKS

The enclosed is responsive to the Examiner's Office Action mailed on July 14, 2008. At the time the Examiner mailed the Office Action claims 1-23 and 25-29, were pending and, of those, claims 48-53 were withdrawn. By way of the present response Applicants have: 1) amended claims 1, 16, 17, 19, 23, and 28; and 2) added no claims; and 3) canceled no claims. As such, claims 1-23 and 25-29 are now pending. Applicants respectfully request reconsideration of the present application and allowance of all claims now presented.

Examiner's attention is directed to the patent number cited with the Bayan reference in the rejections. The patent number cited is 6,511,048, which is a patent to Sohda related to electron beam lithography and does not appear to be relevant. It appears that there was a typographic error and the patent number to Bayan should have been 6,551,048. Applicant is assuming the intended reference cited is the later reference, and is reflected in the response. Please correct future correspondences accordingly.

Multiple Rejections of the Same Claims

Independent claim 1, was rejected once under a 102 rejection by one reference, and again under a 103 rejection using two different references, and then rejected a third time under another 103 rejection with three different references. Some of the other claims are also rejected multiple times with different references.

Under MPEP 706.02 (I), only the "best available art" is to be used in making a rejection. Similarly, under 37 CFR 1.104, "in rejecting claims" only the "best available art" is to be used. Further, PTO's policy is against making multiple rejections of the same claims, since it is a waste of resources for both Applicant and PTO, and can lead to abuses. If the Examiner has a sound rejection, then there clearly is no legitimate reason for making additional rejections. However, if the Examiner's rejection is weak, the

Examiner should not try to employ additional rejections, with the hope of sustaining one of the rejections. Such a strategy is improper and violates MPEP 706.02 (I) and 37 CFR 1.104. Applicant requests that the Examiner refrain from multiple rejections and limit rejections to **only** the “best available art.”

Claim Rejections - 35 U.S.C. §102(e)

Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,683,663 by Hadley et al. (hereinafter “Hadley”). In light of the amendment, the Examiner’s rejections have become moot. Nonetheless, the following remarks regarding the Examiner’s rejections and the amended claims may be helpful to expedite prosecution.

MPEP 706.02(b) clearly states that a 102(e) rejection is overcome by perfecting benefits under 35 USC 119(e) or 120. Further, MPEP 201.08 states that a properly executed benefit for priority for a CIP requires: (1) a common assignee or at least one inventor in common, (2) application filed before publication or abandonment, (3) the CIP makes a specific reference to the parent. The instant application, filed on 4-15-04, is a divisional of now US patent 6,731,353, which issued on 5-4-04, after the filing of the instant application. Furthermore, both the parent ‘353 patent claim priority to the Hadley ‘663 patent, as a continuation-in-part (CIP). The priority for the instant application was perfected in an amendment filed on 4-15-04 by amending paragraph [0001]. The parent patent, Hadley ‘663, issued on 1-27-04, which is after the filing date of the CIP application of 5-10-02. Therefore, the continuity chain of the instant application, which is a divisional of US 6,731,353, which is a CIP of the Hadley ‘663 patent, is proper and unbroken and had been properly executed back on 4-15-04.

The Office Action, dated 7-14-08, appears to have failed to recognize the existence of the priority chain to the Hadley parent application. Applicant called the Examiner, Kimberly McClelland on 10-13-08, and identified the error in the Office Action. The Examiner was unable to identify any specific defects in the priority chain and sought advise from her supervisor, Philip C. Tucker. However, her supervisor had

already left for the day, and was unwilling to withdraw the rejection by phone. In the event the Examiner maintains the 102(e) rejection, Applicant requests the Office Action provide specifics regarding any alleged defects in the priority chain.

Applicant, accordingly, respectfully requests withdrawal of the rejections of claim 1 under 35 U.S.C. § 102(b) as being anticipated by Hadley.

Claim Rejections - 35 U.S.C. §103(a)

Claims 28-29 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,742,561 by Nam et al. (hereinafter "Nam") in view of U.S. Patent No. 4,914,809 by Fukai et al. (hereinafter "Fukai"). In light of the amendment, the Examiner's rejections have become moot. Nonetheless, the following remarks regarding the Examiner's rejections and the amended claims may be helpful to expedite prosecution.

Claim 28 relates to an apparatus for transferring functional blocks comprising: a **mobile relocating tool** having a first plurality of receptor sites for depositing a plurality of functional blocks therein, wherein at least one of said **receptor sites is a recessed region** within **said relocating tool**, the recessed region designed to closely fit at least a portion of a single functional block; a **fluid assembly environment** for depositing said functional blocks into the first plurality of receptor sites; a **moving mechanism** coupled to the relocating tool to move the relocating tool from the **fluidic assembly environment** to another environment; and a transfer tool coupling to an adhesive layer; said transfer tool to transfer said plurality of functional blocks from said relocating tool to a substrate wherein said plurality of functional blocks adhere to said adhesive layer, wherein the transfer tool comprises a **plurality of attachment sites positioned relative to each other** that comprises the same relative positions as the **plurality of receptor sites** in the relocating tool, and the same relative positions as **deposition sites on the substrate** upon which a plurality of functional blocks are to be deposited.

In contrast, Nam is alleged to disclose a fixed table 56 as a relocating tool, with a diced wafer 70 thereupon, wherein the die are alleged to be functional blocks and the void created when the die are removed are alleged to be receptor cites. However, Nam fails to disclose or suggest that the alleged recessed region nor the receptor sites are actually within the **relocating tool** nor that the relocating tool is **mobile**.

Furthermore, Nam fails to disclose or suggest a **fluid assembly environment** for depositing said functional blocks into the first plurality of receptor sites; nor a **moving mechanism coupled to the relocating tool to move the relocating tool** from the **fluidic assembly environment** to another environment; nor a transfer tool, wherein the transfer tool comprises a **plurality of attachment sites positioned relative to each other** that comprises the **same relative positions** as the **plurality of receptor sites** in the relocating tool, and the same relative positions as **deposition sites on the substrate** upon which a plurality of functional blocks are to be deposited. Claim 28, as amended explicitly recites a fluid assembly environment as a component of the apparatus, thus overcoming the intended use assertion in the Office Action. Further, Nam not only fails to disclose or suggest a **fluid assembly environment** for depositing said functional blocks, Nam appears to be inoperable to such a modification and would at best substantially change the principal mode of operation.

MPEP 2143.01 states that “If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious.” *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).

The principle mode of operation in Nam is to transfer die, marked as good, directly from a diced wafer to a substrate. Since Nam fails to provide a relocating tool wherein the receptor sites are actually within the **relocating tool**, any attempt to modify Nam with a fluid assembly environment would clearly fail to provide a random flow of chips to somehow align themselves into rows and columns. The Office Action alleges that the missing die from the diced wafer constitutes a receptor site. However, with a fluid assembly, the deposition would start with all the die missing, and thus, there would be no receptor sites and therefore not assembly of chips, and thus, the modification would render the apparatus inoperable. At best, it would require

substantial changes in the principle mode of operation, which is insufficient grounds for obviousness.

Nam also suffers from the deficiency of failing to disclose or suggest a **moving mechanism coupled to the relocating tool to move the relocating tool** from the **fluidic assembly environment** to another environment; nor a transfer tool, wherein the transfer tool comprises a plurality of attachment sites positioned relative to each other that comprises the same relative positions as the plurality of receptor sites in the relocating tool, and the same relative positions as **deposition sites on the substrate** upon which a plurality of functional blocks are to be deposited. The principle mode of operation in Nam relies on a stationary relocating tool and a pick-and-place operation to pick up chips from the source of chips, i.e. the diced wafer, and placing them onto substrates on a conveyor line. Modifying Nam to have a mobile relocating tool would require Nam to either change its mode of operation or degrade its operation. Nam has no reason to make mobile or move its wafer table or alleged relocating tool. The robotic movements of a transfer tool to move from the same known stationary wafer table to the substrate is much simpler, easier to program, and enjoys more relaxed tolerances in aligning the transfer tool, than in a system where both the transfer tool is moving and the wafer table is moving. In essence, it is much easier to have a moving shooter hit a stationary target, than a moving shooter hit a moving target, particularly if the motions are uncoordinated and/or random.

Furthermore, modifying Nam to employ a plurality of nozzles to pick-and-place chips onto a conveyor of substrates would at least require one to change the principle mode of operation of the Nam reference. The principle mode of operation in Nam is to identify a good chip from the diced wafer, based on its markings, pick up said chip, and place it on a substrate. The proposed modification would require a plurality of nozzles, in fixed relative positions, to pick up a plurality of chips and then deposit the plurality of chip onto a plurality of substrates. Such a modification would either be inoperable or require a dramatic change in the principle mode of operation of Nam. The proposed modification would require that the spacing between the plurality of nozzles would be some multiple of the width and/or length of the chips being picked up. This limitation arises because the chips for pick-up are positioned on a diced wafer, so they are

adjacent to each other, and thus, requiring the positioning of the nozzles to be likewise positioned. However, this limitation also causes additional problems. How are defective chips on the diced wafer dealt with? Are the defective chips not picked up, thus leaving a void in the plurality of nozzles? If so, how are such voids dealt with?

In addition, the relative positions of the nozzles, which are positioned relative to the pattern of the diced wafer, are generally different than the relative positions between the substrates. Consequently, the relative positioning of the nozzles would have to change with each pick-up and each placing of the plurality of chip, which would be impractical rendering the modification inoperable. At best, the principle mode of operation would have to change dramatically.

Fukai is introduced to provide a disclosure related to receptor sites and a moving mechanism for the relocating tool. However, as discussed above, it is unclear how Nam would be modified to include receptor sites and there is no motivation in the prior art of record to modify Nam with receptor sites. The Office Action merely identifies the alleged feature and asserts that it would be obvious to modify Nam to include such a feature. Applicant assert that there appears to be no practical modification nor a motivation to modify Nam's diced wafer and table with Fukai without rendering the modification inoperable and/or without substantially modifying the principle mode of operation of Nam. Nam uses a head having a single nozzle, wherein the head moves in all three directions, X, Y, and Z, with a stationary table. Nam has a source of die coming directly from a diced wafer. It is unclear, how or why Nam would be modified to have the source of die now come from a chute, dropping the die into positioning vessels. Are we to understand that an ordinary artisan would modify Nam by moving the die from the diced wafer into chutes, which are then dropped into positioning vessels, which are then positioned under a plurality of nozzles of a pick-and-place robot to place the die onto substrates? Since Nam uses a pick-and-place robot, why not just place the die directly from the diced wafer to the substrate? Why have a pick-and-place robot and a movable table, i.e. two separate devices moving in the X-Y plane, when both references only employ one device moving in the X-Y plane, although different devices? Why would anyone change the principle mode of operation of Nam to include additional steps and equipment to perform the same operation in more time, less

efficiently, and with greater costs? It appears that the rejection and combination of Nam and Fukai is a result of hindsight reasoning by the Examiner.

In addition, neither reference, either singly or in combination, discloses or suggests a fluid assembly environment for depositing said functional blocks. "To establish a *prima facie* case of obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art." MPEP 2143.03 citing *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974).

In view of the above remarks, a specific discussion of the dependent claims is considered to be unnecessary. Therefore, Applicants' silence regarding any dependent claim is not to be interpreted as agreement with, or acquiescence to, the rejection of such claim or as waiving any argument regarding that claim.

Applicant, accordingly, respectfully requests withdrawal of the rejections of claims 28-29 under 35 U.S.C. § 103(a) as being unpatentable over Nam in view of Fukai.

Claims 1, 3, and 6-17 were rejected under 35 U.S.C. 103(a) as being unpatentable over Nam in view of Bayan, Smith and Fukai. In light of the amendment, the Examiner's rejections have become moot. Nonetheless, the following remarks regarding the Examiner's rejections and the amended claims may be helpful to expedite prosecution.

In view of the above remarks, the many deficiencies of Nam and Fukai discussed above are still exhibited in at least independent claims 1 and 16. Furthermore, the Bayan reference cannot be used because the '048 patent application was filed July 12, 2000, after the priority date of Mar. 16, 1999, of the parent application '663, which also has priority to a provisional application filed Feb. 5, 1999. Note that Bayan was introduced to allegedly disclose an off load system having a plurality of nozzles. However, the instant application, which is a divisional of a CIP of parent patent 6,683,663, discloses various embodiments comprising a plurality of nozzles. See figures 29-38. Further, Bayan fails to remedy the defects in Nam and Fukai.

In addition, Smith which is used to disclose a fluidic environment fails to provide a specific means for modifying Nam that would not render the modification inoperable nor change the principle mode of operation of Nam. As discussed above, it is unclear how and why a diced wafer on a stationary table in a pick-and –place apparatus would be obvious to modify to a fluidic environment having die in the fluid, which are loaded onto the relocation tool by a stochastic process. The principle mode of operation in Nam is a very deterministic process, where a robot arm picks up a specific die and places it onto the substrate in a specific location. The principle mode of operation in Smith is a very random stochastic process, where a fluid having blocks is flowing over a template having receptor sites, wherein each of the blocks are randomly passed over the template surface and may or may not fall into a receptor site. The principle mode of operations of both references are very different, and thus, Nam cannot be modified by Smith.

MPEP 2143.01 states that "If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious." *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).

In light of the above remarks, a specific discussion of the dependent claims is considered to be unnecessary. Therefore, Applicants' silence regarding any dependent claim is not to be interpreted as agreement with, or acquiescence to, the rejection of such claim or as waiving any argument regarding that claim.

Applicant, accordingly, respectfully requests withdrawal of the rejections of claims 1, 3, and 6-17 under 35 U.S.C. § 103(a) as being unpatentable over Nam, Bayan, Smith and Fukai.

Applicant notes that at least in paragraph 13 of the Office Action, the Examiner refers to "the evacuation step", which is suggested may be patentable. However, Applicant is uncertain as to what specifically is being referred to as "the evacuation step." Applicant would appreciate further elaboration.

Claims 1, 9, 12 and 16-22 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,765,277 by Jin et al. (hereinafter “Jin”) in view of U.S. Patent No. 6,511,048 by Bayan et al. (hereinafter “Bayan”), U.S. Patent No. 5,904,545 by Smith et al. (hereinafter “Smith”), and Fukai. In light of the amendment, the Examiner’s rejections have become moot. Nonetheless, the following remarks regarding the Examiner’s rejections and the amended claims may be helpful to expedite prosecution.

As discussed above, the subject matter of Bayan post dates the same subject matter of the parent of the CIP, of which, the instant application has the benefit of priority.

Jin is similar to Nam, in that both are pick-and-place apparatus, and both have very deterministic processes of pick up die from a diced wafer and then placing the die onto a substrate. Jin also fails to disclose or suggest a fluidic environment and any such modification would either render the modification inoperable and/or require substantial changes in the principle mode of operation.

In light of the above discussion, which previously identified the deficiencies of Smith and Fukai, the modification of Jin would at least require substantial changes in the principle mode of operation of Jim, and thus, fails to make a *prima facie* case of obviousness. MPEP 2143.01 states that “If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious.” *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).

In view of the above remarks, a specific discussion of the dependent claims is considered to be unnecessary. Therefore, Applicants’ silence regarding any dependent claim is not to be interpreted as agreement with, or acquiescence to, the rejection of such claim or as waiving any argument regarding that claim.

Applicant, accordingly, respectfully requests withdrawal of the rejections of claims 1, 9, 12 and 16-22 under 35 U.S.C. § 103(a) as being unpatentable over Jin in view of Bayan, Smith and Fukai.

Claim 2 was rejected under 35 U.S.C. 103(a) as being unpatentable over Nam in view of Bayan, Smith and Fukai as applied to claims 1, 3, and 6-17 and further in view of U.S. Patent No. 6,193,139 by Higashi et al. (hereinafter “Higashi”).

In light of the amendment, the Examiner’s rejections have become moot, and in view of the above remarks, a specific discussion of the dependent claims is considered to be unnecessary. Therefore, Applicants’ silence regarding any dependent claim is not to be interpreted as agreement with, or acquiescence to, the rejection of such claim or as waiving any argument regarding that claim. Nonetheless, the following remarks regarding the Examiner’s rejections and the amended claims may be helpful to expedite prosecution.

Higashi is introduced to disclose the vibration device of claim 2, but fails to remedy any of the deficiencies of the prior art of record. Further, claim 2 relates to a vibration device to “agitate”, whereas Higashi is asserted to perform “ultrasonic bonding.” Applicant asserts that the structural differences between a vibration device that agitates is dramatically different than a vibration device that results in ultrasonic bonding. The two vibration devices are structurally different, and thus Higashi also fails to disclose or suggest the limitations related to claim 2.

Applicant, accordingly, respectfully requests withdrawal of the rejections of claim 2 under 35 U.S.C. § 103(a) as being unpatentable over Bayan, Smith and Fukai as applied to claims 1, 3 and 6-17 and further in view of Higashi.

Claims 4-5 were rejected under 35 U.S.C. 103(a) as being unpatentable over Nam in view of Bayan, Smith and Fukai as applied to claims 1, 3, and 6-17 and further in view of U.S. Patent No. 6,261,871 by Langari et al. (hereinafter “Langari”).

In light of the amendment, the Examiner’s rejections have become moot, and in view of the above remarks, a specific discussion of the dependent claims is considered

to be unnecessary. Therefore, Applicants' silence regarding any dependent claim is not to be interpreted as agreement with, or acquiescence to, the rejection of such claim or as waiving any argument regarding that claim. Nonetheless, the following remarks regarding the Examiner's rejections and the amended claims may be helpful to expedite prosecution.

Langari is allegedly introduced to disclose a micro liquid dispenser, but fails to remedy the deficiencies of the prior art of record.

Applicant, accordingly, respectfully requests withdrawal of the rejections of claims 4-5 under 35 U.S.C. § 103(a) as being unpatentable over Bayan, Smith and Fukai as applied to claims 1, 3 and 6-17 and further in view of Langari.

Claims 23 and 25-27 were rejected under 35 U.S.C. 103(a) as being unpatentable over Jin in view of Bayan and U.S. Patent No. 6,830,946 by Yanagisawa et al. (hereinafter "Yanagisawa").

In light of the amendment, the Examiner's rejections have become moot, and in view of the above remarks, a specific discussion of the dependent claims is considered to be unnecessary. Therefore, Applicants' silence regarding any dependent claim is not to be interpreted as agreement with, or acquiescence to, the rejection of such claim or as waiving any argument regarding that claim. Nonetheless, the following remarks regarding the Examiner's rejections and the amended claims may be helpful to expedite prosecution.

Yanagisawa is alleged to disclose a plurality of nozzles, a functional layer, a second substrate, and detaching station. As discussed above, Bayan does not beat the priority date of the instant application, and thus, cannot be used. Further, Yanagisawa at least fails to disclose or suggest a fluidic environment, nor the other deficiencies of Jin, nor the plural nozzles allegedly disclosed in Bayan.

Applicant, accordingly, respectfully requests withdrawal of the rejections of claims 23 and 25-27 under 35 U.S.C. § 103(a) as being unpatentable over Jin in view of Bayan and Yanagisawa.

CONCLUSION

Applicant respectfully submits that the present application is in condition for allowance.

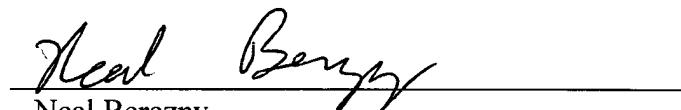
If the Examiner believes a telephone conference would expedite or assist in the allowance of the present application, the Examiner is invited to call Neal Berezny at (408) 720-8300.

Pursuant to 37 C.F.R. 1.136(a)(3), applicant(s) hereby request and authorize the U.S. Patent and Trademark Office to (1) treat any concurrent or future reply that requires a petition for extension of time as incorporating a petition for extension of time for the appropriate length of time and (2) charge all required fees, including extension of time fees and fees under 37 C.F.R. 1.16 and 1.17, to Deposit Account No. 02-2666.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP

Date: November 14, 2008


Neal Berezny
Reg. No. 56,030

1279 Oakmead Parkway
Sunnyvale, CA 94085-4040
(408) 720-8300
Customer No.: 08791